PYTHON 101 : VERSION 3.0

Learn Python, Code the Future

REPORT

Introduction:

"Python 101 : Version 3.0" organised by **Silver Oak University IEEE Student Branch**, was a highly anticipated workshop focusing on gathering tech-enthusiasts to ignite a flame of knowledge. This nexus revolved around helping the attendees dive into the cutting edge realm of Python, ML libraries and OpenCV. This two-day workshop enhanced not only basic python skills of the attendees but also helped them get introduced with the prominent library of OpenCV.

Venue: Newton Hall, 4th floor D-Block, Silver Oak University

Participants: 108

Speakers:

Mr. Chintan Patel

Academic Associate - IIM Ahmedabad
Business Sustainability Advisor
Python Trainer

Mr. Yash Bhatt

Python Developer - Nextgen Clearing Ltd.
Data Science Expert

DAY 1

Date: 21st March 2025

Time: 11:00 A.M. - 02:00 P.M.

About the Workshop:

Fueling innovation and technical excellence, "Python 101: Version 3.0" continued the legacy of Silver Oak University IEEE Student Branch with an immersive hands-on session led by Mr. Chintan Patel. The event commenced with a thought-provoking discussion on problem-solving with Python, emphasizing logical reasoning and structured programming. Participants were introduced to programming paradigms, including Procedural, Functional, Object-Oriented and Logical Programming, with real-world applications. The session then explored data-centric computing, where Mr. Patel illustrated the excellence of Python in automation, data science and machine learning, reinforcing its industry-wide impact.

Diving deeper, the session covered Python's powerful built-in data structures which included lists, dictionaries, tuples and sets along with crucial concepts like memory management, type inference and dynamic typing. The expert elaborated on interpreters vs. compilers, emphasizing performance optimization techniques for Python applications. Participants also gained hands-on experience with exception handling, debugging strategies, modular programming and understanding Python's ecosystem through essential libraries such as NumPy, Pandas and OpenCV. The philosophy of embracing errors as part of learning was reinforced with Abhijit Naskar's quote: "Elimination of error is the elimination of evolution".

Further the engagement of session continued with a mini-project, where attendees applied their knowledge to automation, scripting and game development tasks. Before concluding, Mr. Patel encouraged participants to embark on real-world Python projects to sharpen their problem-solving skills as well as technical skills.

Day 1 of this dynamic forum concluded with a doubt solving session, fostering attendees to enhance their coding and debugging skills. Answering their thought-provoking questions, he brought clarity to their curiosity to explore further. As a gesture of deep gratitude, Mr. Chintan Patel was honored with a commemorative memento by Prof. Digant Parmar, celebrating his impactful contributions to the gathering.

Glimpses of the Workshop:

Mr. Chintan Patel sharing his valuable insights on object oriented programming

Attendees showing keen interest in the concepts of Exception Handling

Participants engaging in the hands-on activity

Mr. Chintan Patel being felicitated with a memento by Prof. Digant Parmar

DAY 2

Date: 22nd March 2025

Time: 09:00 A.M. - 11:30 A.M.

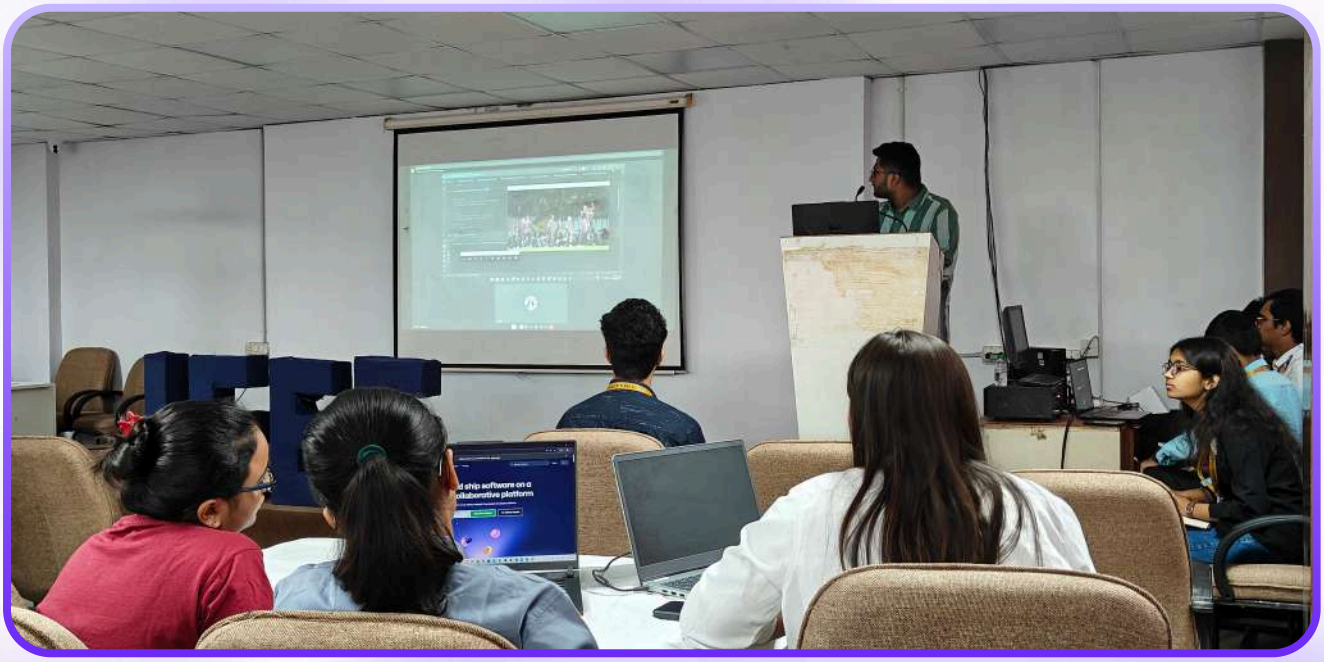
About the Workshop:

Building on the spirit of innovation and technical expertise, day 2 of the workshop commenced by Mr. Yash Bhatt, with a comprehensive overview of ML libraries, primarily focusing on OpenCV and its applications in image processing, computer vision as well as AI solutions. Participants explored its vast use cases in medical imaging, security, robotics and industrial automation. The setup process was demonstrated, covering installation, viewing images along with carrying out basic operations such as reading, manipulating and saving images. The expert then guided participants through a hands-on example, showcasing color object tracking using the HSV color space and introducing NumPy for pixel manipulation in images.

From these foundational concepts, the session progressed to explore advanced image processing techniques. Later discussing the key methods which included filtering, Gaussian blur smoothing and masking to isolate specific regions of interest. Carrying forward, the expert introduced object detection along with tracking methods, using Haar cascades as well as machine learning classifiers with real-time demonstrations of applications in automation, security and autonomous systems. Mr. Bhatt then elaborated on Through-Panel Inspection (TPI), highlighting the use of OpenCV in detecting defects. Lastly a query resolution round was held where attendees raised questions and received insightful responses from the speaker, clarifying their doubts and providing a deeper understanding of the topic, bringing the event to a satisfying and informative close.

The two-day workshop wrapped up here with OpenCV integration in AI/ML for detecting large-scale patterns and its shortcomings in real-time processing. The participants worked together on a concluding project, installing a real-time object tracker and color segmentation module, solidifying their knowledge by applying it. The event concluded with a special gesture of appreciation, as Mr. Yash Bhatt was felicitated with a memento in recognition of his valuable insights by Prof. Digant Parmar.

Glimpses of the Workshop:



Mr. Yash Bhatt introducing students to the concepts of image processing

Participants exploring real world applications and use cases of OpenCV

Attendee indulging into an interactive Q&A session with the speaker

Prof. Digant Parmar presenting a memento to Mr. Yash Bhatt

CONCLUSION

The two-day workshop provided participants with a solid foundation in Python programming and its industrial applications. Through interactive discussions, real-life examples and hands-on projects, attendees gained essential programming skills and learned how to handle data effectively. The workshop also covered image processing using the OpenCV library, emphasizing continuous learning, problem-solving and practical implementation. By the end of the session, participants were equipped with valuable skills for real-world applications.

This workshop would not have been possible without the guidance and support of Dr. Satvik Khara – Dean, School of Technology, Design and Computer Application; IEEE Senior Member; Chairperson, SIGHT, IEEE Gujarat Section; Chairperson, Technical Committee, Computer Society, IEEE Gujarat Section; Founding Member, Silver Oak University IEEE Student Branch.

DAY 1

DAY 2